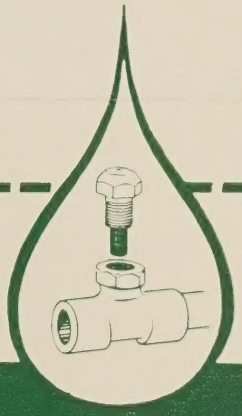
Solve Your Greenhouse Humidity Problems

with

L&H Low Pressure Greenhouse Humidity Systems

Increased Profits can be Yours!

- ★ Plants can be grown with increased light
- ★ Reduces pot watering and overhead syringing
- ★ Osmunda and other composts last longer
- ★ Improved root systems
- ★ Stronger plants, more growths, healthier foliage
- ★ Summer cooling effect
- ★ More flowers of better quality



Lager & Hurrell

ORCHID GROWERS & IMPORTERS ESTABLISHED 1896

Summit, New Jersey

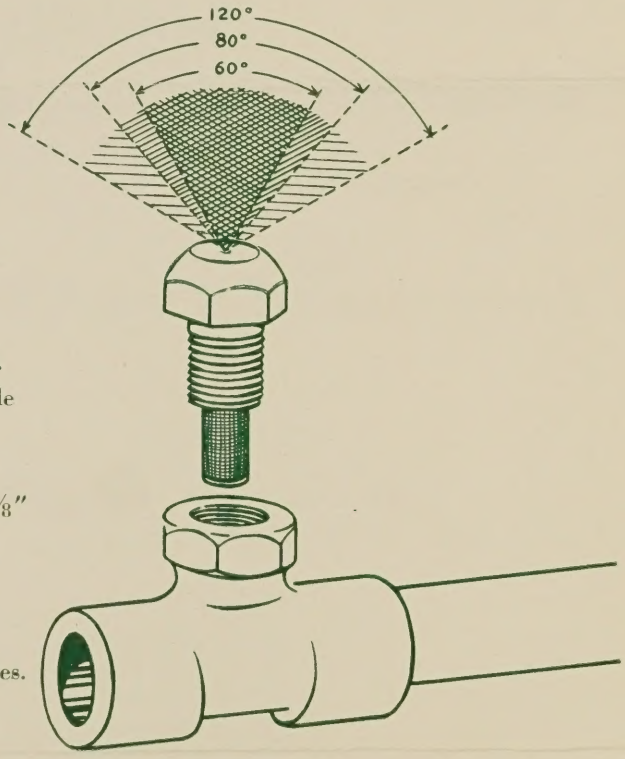
The importance of correctly controlled greenhouse humidity is now recognized as a very necessary factor for optimum plant growth. Daily we hear reports from commercial growers, our agricultural experiment stations and from hundreds of small, amateur growers and hobbyists throughout the country as to the value and many benefits derived from properly controlled humidity — especially in relation to orchids.

In developing our Low Pressure Greenhouse Humidity Systems, our chief considerations were maximum efficiency with the best materials at the lowest possible cost. This system can be manually operated or combined with automatic controls to make up a simple, efficient, low-cost assembly. For installation we recommend ½" copper tubing available at your plumbing supply house.

NOZZLE ASSEMBLY

Illustrating our special combination low-pressure H-261 nozzle tip, especially designed to atomize water at low pressures, and special copper sweat Tee fitting designed for use with the H-261 nozzle tip. The all brass nozzle tip with a ¼" standard male thread screws directly into this special tee fitting. The 120 mesh Monel strainer, which will not rust or corrode, protrudes approximately ⅛" into the body of the fitting to facilitate cleaning. We recommend a faucet at the far end of your supply line for this purpose.

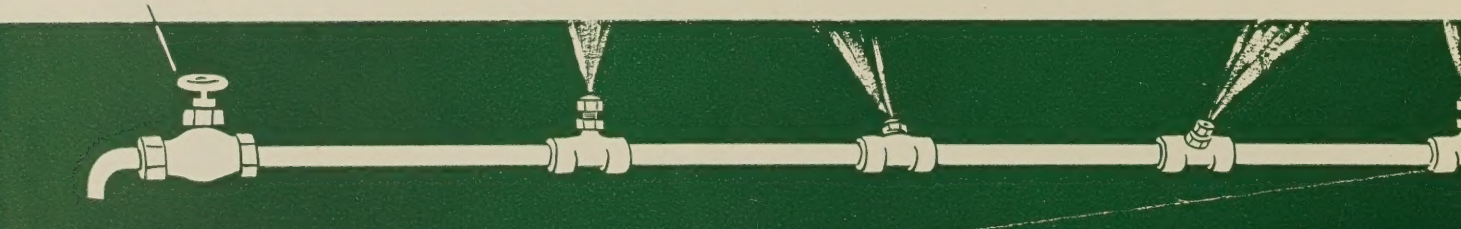
Nozzles available in 60°, 80° and 120° spray angles. (See insert).



CAPACITIES IN GALLONS PER HOUR

Nozzle No.	Lbs. Operating Pressure						
	25	30	35	40	60	80	100
H-261	1.03	1.15	1.23	1.39	1.62	1.85	1.95

Flush out valve



LUMITE HORTICULTURAL SHADE CLOTHS

Lumite Horticultural Shade Cloths are woven of Dow Chemical Company's Saran, a plastic which is chemically inert. Lumite will not rust or corrode and is unaffected by moisture. Its tensile strength is approximately 40,000 lbs. per square inch.

For years balanced light has been a major problem of growers. Lumite Horticultural Shade Cloths, because of their construction, provide proper shade while allowing the beneficial rays of the sun to penetrate. Lumite has been under development for a long period to time and has been extensively tested in both the laboratory and in general use under varied growing and climatic conditions.

ADVANTAGES OF LUMITE SHADING

Provides proper shade with a known constant light transmission while allowing the beneficial rays of the sun to penetrate.

Lower summer temperatures due to heat reflective properties.

Aids in providing stronger plants with an increase in flowers of better quality.

Easily erected over glass - fasten to sash bars or install as roller shades.

Will not support combustion and does not deteriorate in summer heat or winter cold.

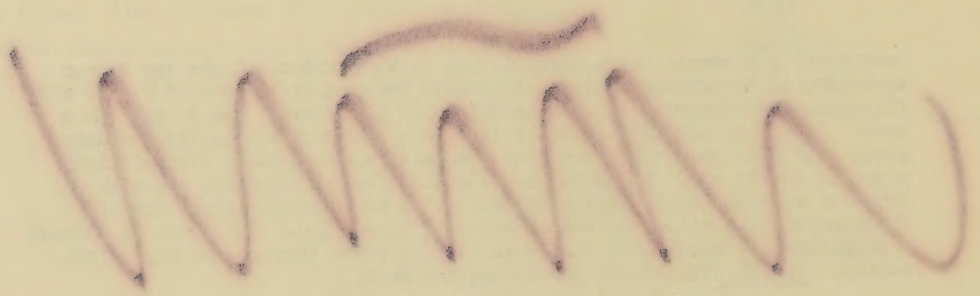
ORCHID CLOTH

Developed as a result of research by Dr. O. W. Davidson of the New Jersey Agricultural Experiment Station at Rutgers University. Woven of a .020 mil. filament in a construction of alternating ½" close weave and ½" open 12 x 12 mesh. Packed in 100 lineal foot rolls, each roll containing 412.5 square feet, 49½" wide in ivory color. It transmits approximately 52½% of light with the sun at a 90° angle to the material. Recommended for use with all types of orchids, especially cattleyas, with the possible exception of Phalaenopsis and other varieties requiring less light. For these we suggest a supplementary shading of our green 18 x 14 weave through the high light months. PRICED AT: $30.00 per 100 square feet.

18 x 14 GREEN OR GREY WEAVE

Woven of a .015 mil. filament in a green or grey 18 x 14 per square inch construction in widths available from 24" to 60"; packed in 100 lineal foot rolls with not more than two pieces per roll. Transmits approximately 70% of light with the sun at a 90° angle to the material. Recommended for Cymbidiums and other light-loving varieties. PRICED AT: $11.00 per 100 square feet in either color.

In ordering, please specify either total amount of square feet or total lineal feet of desired widths. When quantities of less than 100 lineal foot rolls are ordered, an extra charge of 10% will be made for cutting and re-packing. TERMS: Cash with order or net 30 days when credit is established. All materials shipped F.O.B. Summit, N. J. or Cornelia, Georgia.



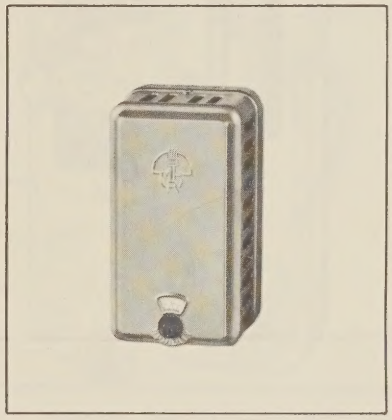
INSTALLATION INSTRUCTIONS

MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

TYPES H41, H61 HUMIDITY CONTROLLERS

Control of either humidifying or dehumidifying equipment is obtained with these sensitive Humidity Controllers. The operating element is made up of strands of human hair which contract or expand with changes in relative humidity and in turn operate a mercury switch.

The H41 and H61 models may be used in either low or line voltage circuits.



SPECIFICATIONS

TYPES—

H41A—Opens circuit on humidity rise (S.P.S.T.).

H41B—Closes circuit on humidity rise (S.P.S.T.).

H61A—Closes circuit on humidity rise. Furnished with a Series 60 (S.P.D.T.) switch.

FINISH—Silver. (Special finishes available at extra cost. Submit sample).

RANGE—20 to 80% Relative Humidity.

DIFFERENTIAL — Non-adjustable. H41: 3%, H61: 5%.

OPERATING ELEMENT—Human hair.

ADJUSTMENT MEANS—External knob.

Electrical Rating in Amperes:

	115V.		230 V.	
	Running Current	Locked Rotor	Running Current	Locked Rotor
A.C.	1.0	——	.5	——
D.C.	1.0	——	.5	——

DIMENSIONS—Height 5 3/8", width 3 1/8", depth 3".

SPECIAL FEATURES AVAILABLE—(at extra cost).
Locking cover with key set.

WHEN ORDERING SPECIFY:
1. Type Number.
2. Special features required.

INSTALLATION

GENERAL — The Humidity Controller should always be mounted on a wall in the space being humidified (or dehumidified) except when used with a central fan heating or air conditioning system supplying air to more than one room. In the latter case it should be mounted in the return air duct.

When located in the room, the Humidity Controller should be mounted about five feet above the floor where it will be affected only by the average temperature and relative humidity of the room (not on an outside wall). There should be no obstruction to free circulation of air over the controller such as furniture or doors. Do not mount the controller where it may be affected by drafts, hot or cold air from water pipes or ducts, radiant heat from the sun or fireplace, etc.

These Humidity Controllers are intended principally for the usual air conditioning applications. Where unusual temperatures, corrosive atmospheres, or extremely high humidities are expected, consult our Engineering Department for recommendations.

MOUNTING—1. Mount a standard wall switch box in the wall about five feet above the floor or in the duct (See paragraph 6) at a suitable location and run the wiring to the box in conduit, BX, or thermostat cable. **Be sure that all wiring complies with local electrical codes.**

2. Remove the wall plate from the base of the controller by loosening the screw in the bottom end of the base.

3. Fasten the wall plate to the switch box with the two mounting screws furnished. Note the pendulum leveling indicator on the plate and see that the plate is mounted level. Do not distort the base by tightening the mounting screws too tightly. If the wall surface is uneven, shims should be placed under the wall plate to prevent it from being distorted when the screws are tightened.

4. Strip 3/4" of insulation from ends of connection wires and fasten them to the proper terminals on the base of the controller.

5. Fasten the Humidity Controller in position over the wall plate by engaging the two holes in the top of the base with the prongs on the wall plate. Then tighten the screw in the bottom end of the base.

6. **Duct Mounting**—If the Humidity Controller is to be located in a duct, it should be mounted on a removable or hinged-access door to facilitate inspection and setting. A sheet metal shield should be placed ahead of the controller to prevent air at high velocity from passing through it.

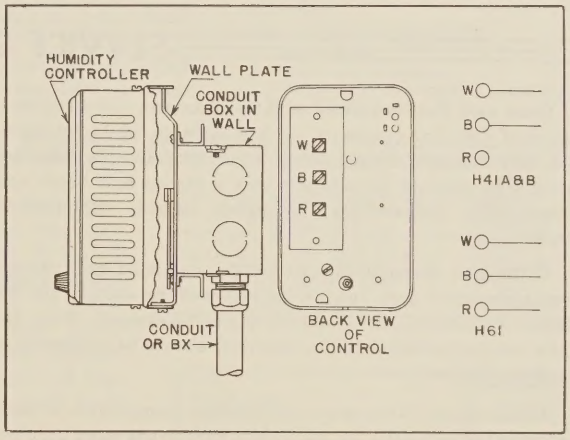


Fig. 1—Assembly of Controller and wiring connections. (See Fig. 5 for Terminal Arrangement of older models.)

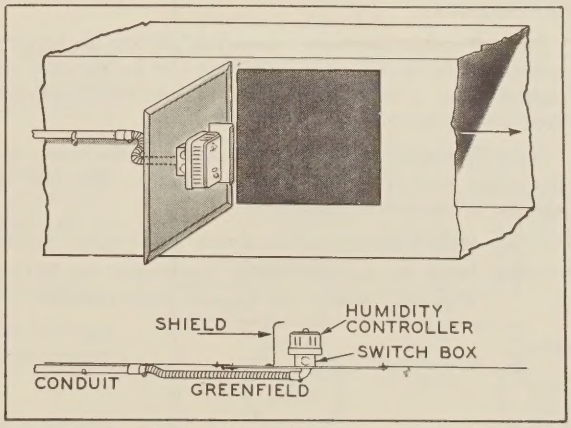


Fig. 2—Method of mounting on access door.

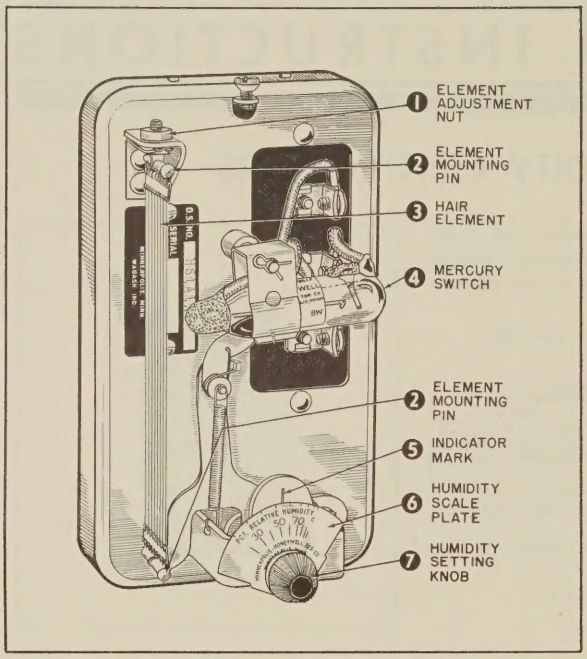


Fig. 3—Type H61 Controller. Type H41A & B are similar except that they have a two-wire mercury switch.

SETTING AND ADJUSTING

SETTING—To set the Humidity Controller it is only necessary to turn the knurled knob (7-Fig.3) until the indicator mark (5) is opposite the desired percent of relative humidity on the scale (6).

High Limit Stop—Humidity Controllers are equipped with an adjustable high limit "stop" to prevent setting the indicator above the maximum desired point.

The stop is factory set at maximum, but may be changed as follows: Loosen the clamp nut (9-Fig. 4). Turn the setting knob (7) until the pointer is opposite the maximum desired reading on the scale. Then rotate the cam (11) until the pin (10) rests against the rotor piece (8). Tighten the clamp nut (9) to hold the stop in place.

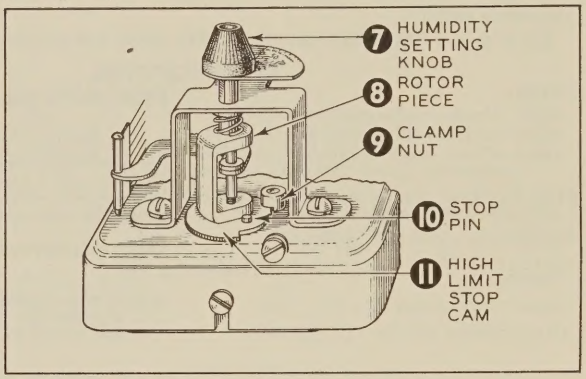


Fig. 4—Adjustable stop for maximum setting.

SERVICE SUGGESTIONS

Care and Replacement of Hair Element—The accumulation of dust and grease on the hair element, while not harmful, may decrease the sensitivity of the controller. The element should be cleaned periodically with a camels hair brush and clean ether, followed by a complete wetting with distilled water.

If the hair element should become damaged and require replacement, it may readily be removed by sliding out the element mounting pin (2) at each end of the element. When the new element is installed, the controller should be calibrated as outlined below.

Calibration—Determine the relative humidity at a point close to the controller by means of a high grade sling psychrometer and psychrometric chart. **Do not rely on the reading of inexpensive relative humidity indicators to calibrate the controller.**

Carefully follow the instructions furnished with the psychrometer, using a clean wick tightly fitted to the wet bulb, and distilled water at room temperature. Take at least three readings, wetting the wick before each reading.

After determining the relative humidity of the room, turn the setting knob (7) to this point on the scale. Then turn the element adjustment nut (1) until—

(a) H41A & B: the mercury switch "just breaks" contact.

(b) H61A: the mercury switch "just breaks" the Red and Blue and "makes" the Red and White contacts.

The controller should then be in proper calibration. However, the heat and moisture from your body may have affected the calibration by several percent, and the adjustment should therefore be checked. **Move away from the controller for at least 15 minutes.** Then turn the setting knob (7) until the scale registers the actual relative humidity of the room (as previously measured by the sling psychrometer) and note whether the position of the mercury switch or potentiometer slider corresponds with that outlined under (a) or (b) above. If not, turn adjusting nut (1) slightly and recheck the adjustment.

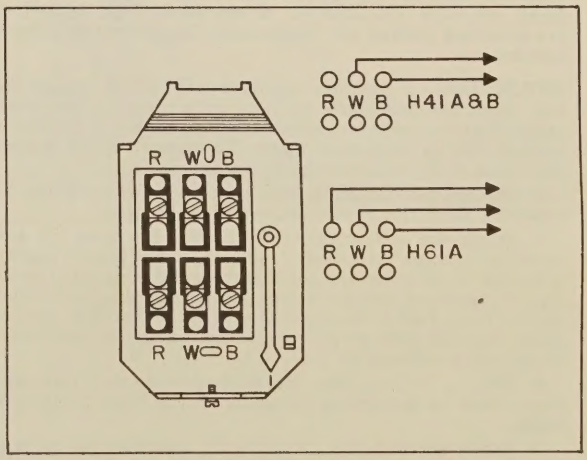


Fig. 5—Terminal Arrangements in Older Models.

INSTALLATION INSTRUCTIONS

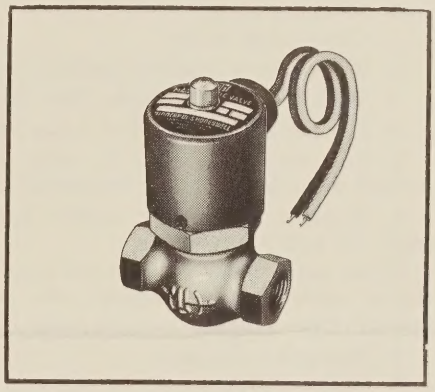
MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

TYPES V437 AND V837 MAGNETIC WATER VALVES

These valves are silent in operation and are equipped with easily replaceable seats and plungers. They are designed to operate against water pressures of 100 lbs. per square inch maximum, but are not recommended for automatic boiler feeder use, as a refrigerant flow control, or where the water temperature will exceed 100° if liming is a factor. A liquid temperature of 160° is permissible where liming is not a factor. They are available in straight through patterns only.

The V437A and V837A Magnetic Water Valves are designed for use, primarily, on domestic spray type humidifying systems.

The two valves are similar in operation except that the V837A Valve operates on low voltage and is furnished with a transformer.



SPECIFICATIONS

TYPES—
V437A Water Valve (Series 40).
V837A Water Valve (Series 80).

PATTERN—Straight through, non-offset.

CONDUIT OUTLET POSITION—(Adjustable) factory set with outlet on left hand side (when facing inlet end).

VOLTAGE AND FREQUENCY—115 volts, 60 cycle. 115 volts, 50 cycle at no extra cost. Other voltages and frequencies at extra cost. For D.C. specify V43A.

VALVE SIZE—$\frac{3}{8}$".

PORT SIZE—$\frac{3}{8}$".

MAXIMUM PRESSURE—100 lbs. at 160° F. (75 lbs. for voltages and frequencies other than 115 or 230 volt, 60 cycle).

CAPACITY—

Inlet Pressure	10#	20#	30#	50#	100#
Capacity G. P. M.	.7	.9	1.1	1.4	1.8

DIMENSIONS—Face to face, 2$\frac{3}{8}$", center line of pipe to top 3$\frac{1}{2}$".

SPECIAL FEATURE AVAILABLE (at extra cost)—Type V437A available with conduit outlet factory set on right hand side (when facing valve inlet). (It should be noted that the conduit outlet position may be changed in the field on all models).

WHEN ORDERING SPECIFY:

1. Type Number.
2. Voltage and frequency.
3. Left or right hand conduit connection (for Type V437A).

INSTALLATION

A suitable strainer should be installed ahead of the valve to prevent dirt and sediment in the line from lodging on the seat and causing improper closure of the magnetic valve. A hand valve installed ahead of the strainer is also recommended.

New galvanized iron pipe, properly reamed and free from foreign chips should be used when installing the valve. Never coat threads of valve body or the first and second threads of the pipe with pipe dope. Pipe dope is apt to lodge on the seat and cause improper seating of the valve.

Install the valve in the line in a **vertical upright** position, with the flow through the valve in the same direction as the arrow on the valve body.

WIRING: These valves are provided with a conduit opening (2-Fig. 3) and leads of sufficient length for making splices. Use No. 14 rubber covered wire in conduit or BX for the wiring to the valve.

For convenience in making connections to the valve the position of the conduit opening can be changed by loosening the clamp nut (11-Fig. 3) and turning the conduit opening to the desired position.

All wiring must comply with local electrical ordinances.

TYPE V837A valve is designed for use with a low voltage power supply only. Select from Table No. 1 the correct transformer for the voltage and frequency to be used.

When the installation has been completed, check the wiring for shorts, defects, etc. by making and breaking the circuit at the controller and noting whether or not the valve opens and closes properly.

VOLTAGE AND FREQUENCY	TRANSFORMER
115 Volt—50-60 Cycle	AT72A1K
115 Volt—25-30 Cycle	AT73A1M
230 Volt—50-60 Cycle	AT72A1L
230 Volt—25-30 Cycle	AT73A1B

Table No. 1

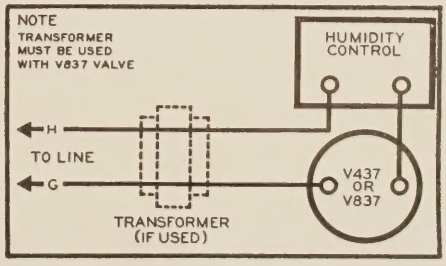


Fig. 1—Connection diagram for V437A and V837A valves.

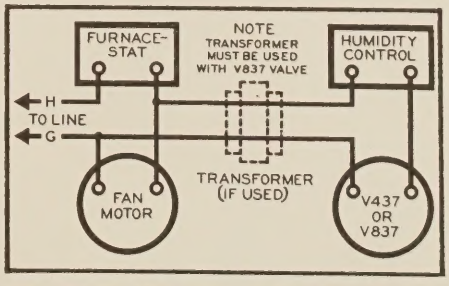


Fig. 2—Connection diagram for V437A and V837A valves.

SERVICE SUGGESTIONS

Foreign matter in the water may accumulate on the seat and cause improper seating or sticking of the valve.

When this condition arises the valve may be taken apart, without removing the body from the line, and may be cleaned as follows:

1. Close hand valve.
2. If necessary remove conduit connections.
3. With a wrench loosen the clamp nut (11).
4. Lift coil assembly off of valve body.
5. Remove valve seat (9) with a proper size socket wrench and clean thoroughly.
6. Remove all foreign matter from the valve body (6) and valve stem.

If the valve body is removed from the line, the inside parts may be flushed with pure naphtha.

CAUTION: Highly inflammable.

7. Replace valve seat.
8. Replace plunger (5) in coil (1).
9. Replace entire assembly over valve body and tighten clamp nut.
10. Test the operation of the valve after re-assembling.

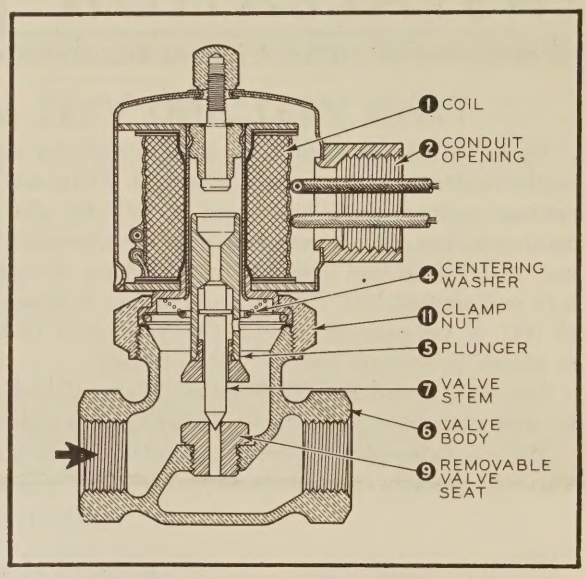
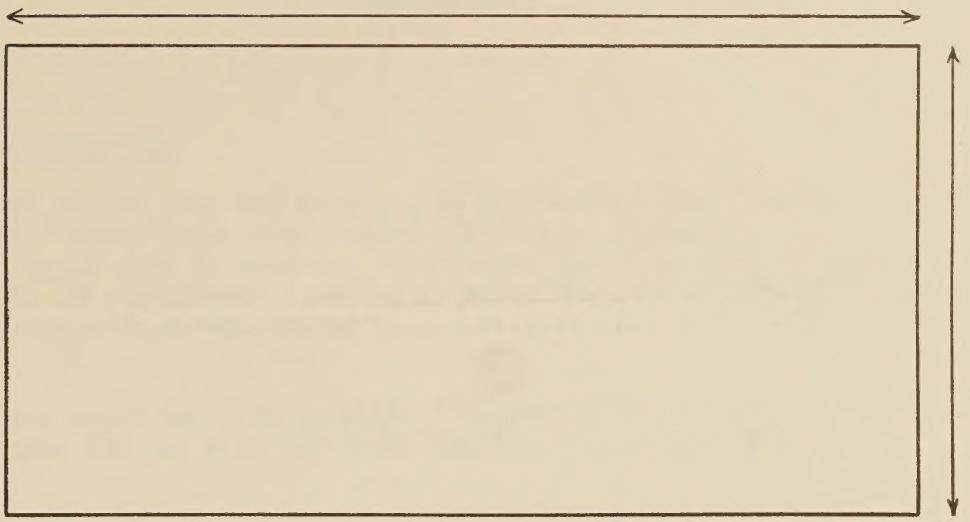
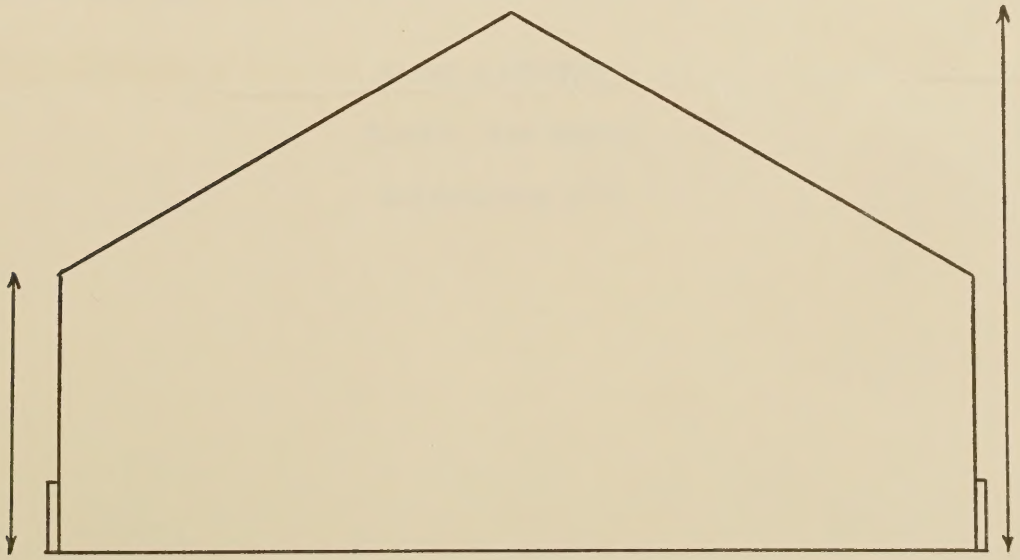


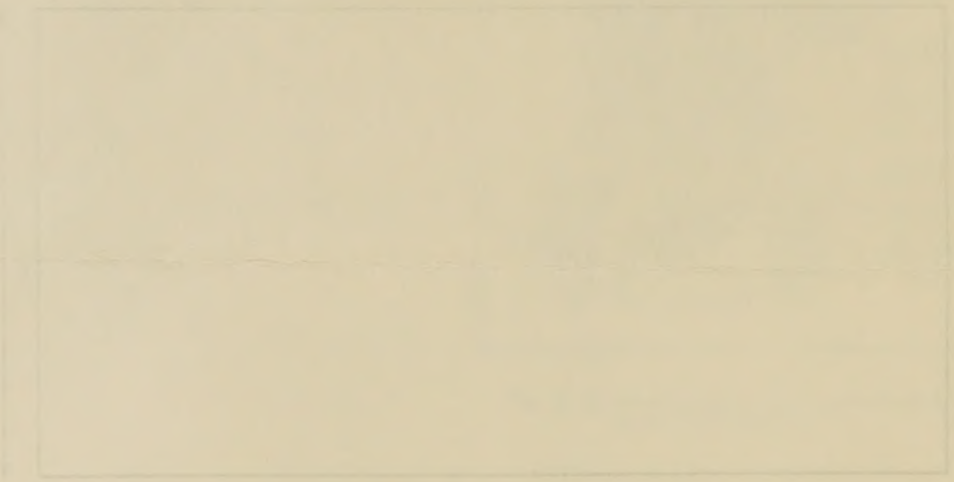
Fig. 3—Internal construction of Type V437A and V837A Valves.

We will be pleased to suggest installation layouts for your greenhouse upon receipt of this insert showing size of house, position and measurement of benches.



1. Length of house..... Width of house.....
2. Height from floor to eave..... Height from floor to gable.....
3. Show position and measurements of benches and walks on floor plan - scale drawing not necessary as long as measurements are accurate.
4. Show measurements and approximate position of benches and walks on gable end plan and height of benches from floor.
5. On gable end plan also show position of heating pipes by the symbol O. On floor plan show position of heating pipes by the use of broken lines.





PRICE LIST

Nozzle Assembly

H -261 nozzle tip, all brass, with $\frac{1}{2}$" standard male thread, in 120° spray angle with a monel (120 mesh) strainer. Nothing to rust or corrode. Operates efficiently from 25 lbs. to 100 lbs. pressure, breaking up water into the finest spray possible with direct pressure.....each $1.45

Special sweat tee fitting with $\frac{1}{4}$" threaded side outlet, designed for use with the H-261 nozzle tip.....each 40¢

AUTOMATIC CONTROLS

MINNEAPOLIS-HONEYWELL

Magnetic Water Valve	(Type V-437)	$15.30
Humidity Controller	(Type H-41A)	$45.70

(See pamphlet and installation instructions)

TERMS: All materials shipped F.O.B. Summit, New Jersey, and terms are cash with order or net 30 days when credit is established.

LAGER & HURRELL

Summit, New Jersey

Established 1896

AUTOMATIC CONTROLS

For an automatic system we recommend Minneapolis-Honeywell equipment.

HUMIDITY CONTROLLER (H-41)

Mount the Humidity controller above the level of the plant tops and not less than five (5) feet from the floor. (Not on an outside wall). There should be no obstruction to free circulation of air over the controller. If in a position where it may be affected by heat from pipes, ducts or radiant heat from the sun, protect with a sun shade or baffle against heat. In operation the Humidity reading will be slightly higher at the plant level than at the Humidistat because of the difference in height. For further information, installation instructions, etc., see insert.

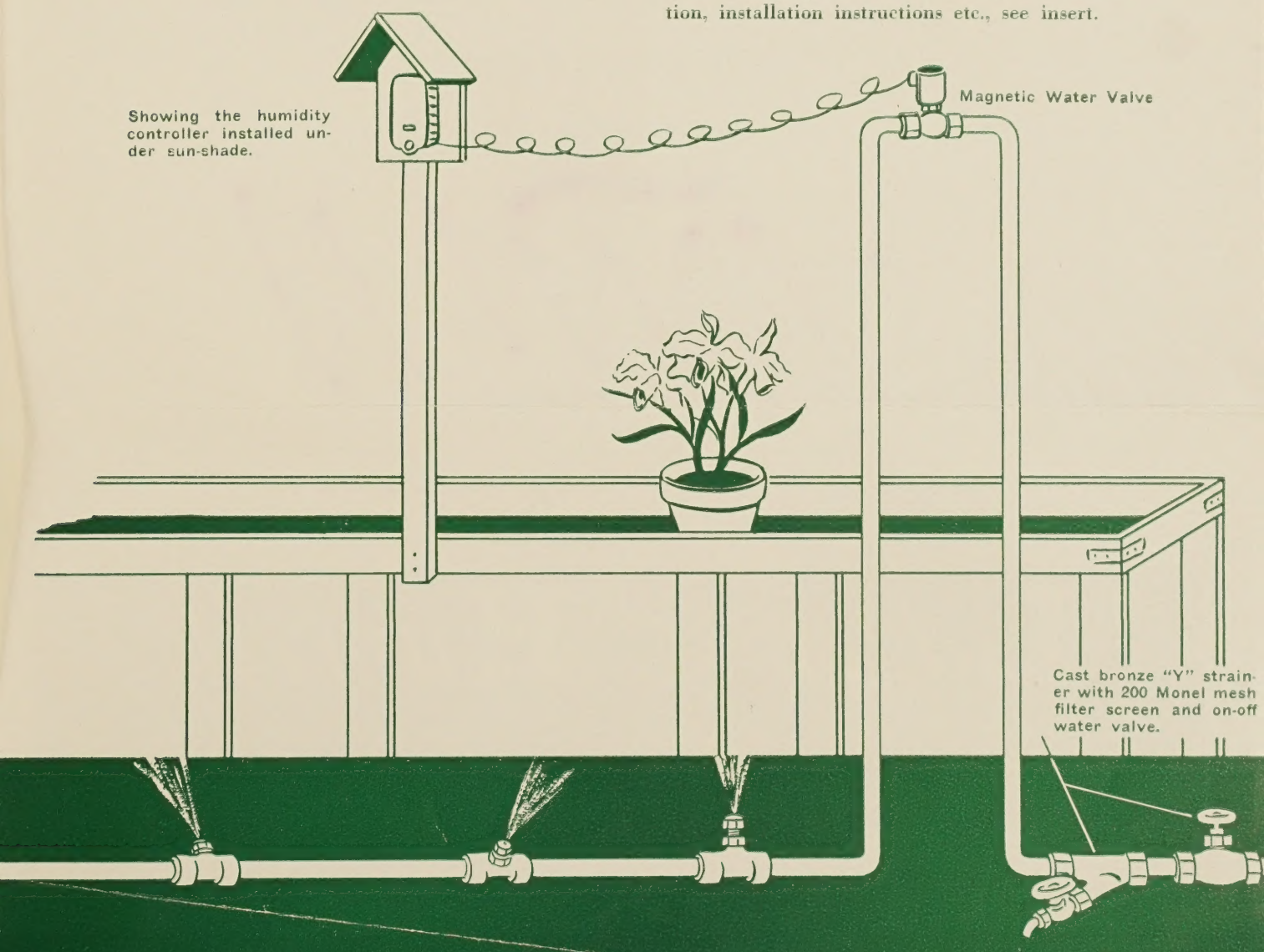
MAGNETIC WATER VALVE (V-437)

This may be installed at any height above the plant bench where it will be protected from water. If installed below the bench this valve should be protected with a cover and conduit used for the electrical connections.

A suitable strainer should be installed ahead of the valve to prevent dirt and sediment in the line from lodging on the seat and causing improper closure of the magnetic valve.

A hand operated valve installed ahead of the strainer is also recommended.

When making sweat connections the electrical coil assembly should be lifted off the valve body, (see insert) to prevent blow torch heat from damaging the coil. For further information, installation instructions etc., see insert.



Supplies and Accessories for Orchid Culture

LUMITE ORCHID SHADE CLOTHS

LUMITE POTTING SQUARES

ALUMINUM POTTING STICKS

OSMUNDA FIBRE — BEST NORTHERN GRADE

WIRE POT HANGERS

INSECTICIDES

WILSON'S ORCHID FERTILIZER

LABELS — INDESTRUCTIBLE CELLULOID

HOSE — SUPPLEX PLASTIC — GUARANTEED

TAYLOR SLING PSYCHROMETERS — FOR HUMIDITY READING

TAYLOR GREENHOUSE THERMOMETERS

WOOD PRESERVATIVES

For further information write for descriptive literature and price list.

Lager & Hurrell

ORCHID GROWERS & IMPORTERS *ESTABLISHED 1896*

Summit, New Jersey